

Claims

1. Arrangement of a burner (2) and a heat exchanger (1), said heat exchanger (1) comprising a plurality of heat exchange elements (3) interconnected to each other with intermediate gaps, said heat exchanger (1) being arranged with an inlet (4') and an outlet (5'), said burner (2) being connected at said inlet (4') to said heat exchanger (1) for providing energy to said heat exchanger (1) by burning a fuel gas, said heat exchanger (1) being arranged, in use, for heat transfer from an outer surface of said heat exchange elements (3) to process air as a secondary gas, said burner (2) being arranged to burn said fuel gas inside said heat exchanger (1) characterised in that said heat exchanger (1) is constructed from a high temperature material to allow, in use, heat transfer to said secondary gas by radiation of said heat exchange elements (3), said radiation being in a visible range of the spectrum, said heat exchanger having a surface temperature in the range of 450 – 1000 °C.
2. Arrangement according to claim 1, characterised in that said high temperature material comprises a high temperature steel or a high temperature alloy.
3. Arrangement according to claim 1 or 2, characterised in that the ratio of the width of one of said heat exchange elements and the width of one of said intermediate gaps is at least 1:3.
4. Arrangement according to claim 1 or 2 or 3, characterised in that said burner (2) is a pressurised burner.
5. Arrangement according to any one of the preceding claims, characterised in that said burner (2) is a modulating burner.
6. Arrangement according to any one of the preceding claims, characterised in that said burner (2) comprises a burner element, being located inside said heat exchanger (1); said burner element being arranged to provide a preferential direction for transfer of said energy through said heat exchange elements (3).
7. Arrangement according to any one of the preceding claims, characterised in that a condensation unit (CU) is connected at said outlet (5') of said heat exchanger (1).

8. Method to be carried out by an arrangement according to any one of the claims 1 - 7, characterised in that
the method comprises:
- heating, in use, of said outer surface of said heat exchange elements (3) to a
5 high surface temperature to allow heat transfer to said secondary gas by
radiation of said heat exchange elements (3), said radiation being in a visible
range of the spectrum, said heat exchanger having a surface temperature in the
range of 450 - 1000 °C.
9. Method according to claim 8, characterised in that
10 said high surface temperature is a surface temperature above 450 °C.
10. Method according to claim 9, characterised in that
said surface temperature is in the range of 450 - 1000 °C, preferably in the
range of 700 - 800°C.
11. Air-heating apparatus comprising an arrangement of a burner (2) and a heat
15 exchanger (1) according to any one of claims 1 through 7.